



Missouri
Department of
Natural Resources

INDIAN CREEK, TRIBUTARY TO INDIAN CREEK
AND COURTOIS CREEK TMDL
EPA COMMENTS

Submitted
May 25, 2010

**Indian Creek, Tributary to Indian Creek, and Courtois Creek
WBID # 1946, 3663 and 1943**

Washington County, Mo.

Missouri Department of Natural Resources
Water Protection Program
PO Box 176
Jefferson City, MO 65102-0176
800-361-4827 / 573-751-1300

Kruse, Michael

From: Hoke, John
Sent: Tuesday, July 13, 2010 8:13 AM
To: Kruse, Michael
Subject: FW: Comments on Indian Creek TMDL

Follow Up Flag: Follow up
Flag Status: Red

FYI and action when you're back in the office. Feel free to set up some time to discuss.
Thanks

John Hoke
Env. Specialist IV, TMDL Unit Chief
Water Quality Monitoring & Assessment
Missouri Department of Natural Resources
Phone: (573) 526-1446 Fax: (573) 522-9920

-----Original Message-----

From: Adkins.Tabatha@epamail.epa.gov [mailto:Adkins.Tabatha@epamail.epa.gov]
Sent: Monday, July 12, 2010 6:13 PM
To: Hoke, John
Subject: Comments on Indian Creek TMDL

John,

Listed are the EPA comments on Indian Creek. Thanks.

TJ

Indian Creek, Tributary to Indian Creek and Courtois Creek Comments on Model

1. Page 10. Drainage area of Courtois Creek at the confluence with Huzzah Creek is about 141242 acres. Please clarify the statement "The Courtois Creek watershed drains 46784 acres ...". Please clarify if Courtois Creek LDC was calculated corresponding to the 141242 acres (571.6 sq.km) of Courtois Creek drainage area.
2. Page 11-13. Please indicate period of record of the flow durations used in Figures 4-9.
3. Page 14. It's not clear if the flow (cfs) column in Tables 3-8 correspond to the median of the flow ranges (1st column). Please explain how the observed load in the tables was calculated.
4. Page 14-15. Please explain why the median flows (2nd column) for each flow interval in table 4 are different from table 3, table 6 different from table 5 and table 8 different from table 7.
5. Page 16-17. Please explain why the target load in table 3 (4th column) is different from the LC in table 9 (3rd column), table 4 different from table 10, table 5 different from table 11, table 6 different from table 12, table 7 different from table 13, table 8 different from table 14.
6. Page 16-17. In tables 9-14 it is not clear if the flows (2nd column) are the median at each flow interval or corresponds to a particular percentile at each range.

For comments 3 through 6, the document should provide more explanations on how the numbers in the tables were derived. There are inconsistencies between tables.

7. Page 17. It looks like the WLA's are set at the 99th percentile. Please correct the statement in the MOS that WLAs were set corresponding to the 80-100 percent flow exceedance.

8. Please provide a table that shows the existing permitted limits of the facilities in the watershed. Please also show the existing loading from the facilities.

Comments on the TMDL

1. Page 5, Section 3.1, "The Indian Creek and Courtois Creek watersheds contain four facilities with site specific permits as well as two facilities with general storm water permits."

Table 2 indicates there are three sites specific, one general permit and two storm water. Please clarify.

2. Pgs 14-15, Tables 3 - 8, and Pgs 16-17, Tables 9-14, the values listed appear to be for a specific percent exceedance values of 20, 40, 60, 80 and 100 and not a range. Please correct the percent exceedance values listed.

3. No mention of CAFOs was made in the TMDL. Please document similar to Village Creek if there are none: "Within the Village Creek watershed, there are no agricultural nonpoint sources of lead that cause or contribute to the impairment. ...Agricultural areas, such as row crop, should not contribute during the growing season due to crop cover, but may contribute to the impairments during field preparation and tillage. However, these periods of disturbance are expected to be infrequent. Additionally, row crop area in the Village Creek watershed only accounts for about 3 percent of the total watershed land use thereby making any inorganic sediment or lead loading contributions minimal."

4. MOS can't be approved as it is written now. Chronic/Acute, Critical condition, WQBEL/TBEL are all requirements. MOS will need to be either explicit or the implicit needs to come from conservative assumptions w/in the modeling or something else that is beyond the TMDL requirements.

5. Please include the Outstanding State Resource Waters designation for Courtois Creek, 12 miles, Mouth to Hwy 8, as it has implications for WLA, loading and NPDES permits.

6. Courtois Creek also has the designated use of Protection of warm-water aquatic life. Please clarify why it is not included. If it needs to be included, please clarify whether it would be an additional impaired designated use.

7. Tables 5 and 6 - Looking at the corresponding LDCs in figures 6 and 7, values can be given for those missing. Please clarify why no values were given in three rows of these tables for flow and LC.

8. WLA and LA section: As requested for the MOS, please clarify at which percent flow exceedance these loads have been set. From the models it appears the WLAs are set at the 99th percentile.

9. There is some inconsistency between the explanation of the problem and the TMDL Allocations. In the problem section, it states there are historic mining sites which are expected to be minor contributors. When discuss nonpoint sources, there is discussion of contaminated soils along roads (unintentional movement) and residential yards (intentional movement for fill).

10. It is unclear whether this TMDL is also to address the listed metals impairment for Indian Creek and Courtois Creek. There appears to be sufficient explanation in Section 1 Introduction to approve this and the approval letter states it is for metals, but the TMDL itself on the first page is only labeled for zinc and lead. Please clarify.

Tabatha Adkins, TMDL Coordinator
Water Quality Management Branch-WWPD,
USEPA Region 7
901 North 5th Street

Kansas City, KS 66101
913.551.7128
adkins.tabatha@epa.gov

EPA comments for the Indian Cr./Courtois Cr. TMDL and Department response

Comments on Model

1. *Page 10. Drainage area of Courtois Creek at the confluence with Huzzah Creek is about 141242 acres. Please clarify the statement “The Courtois Creek watershed drains 46784 acres ...”. Please clarify if Courtois Creek LDC was calculated corresponding to the 141242 acres (571.6 sq.km) of Courtois Creek drainage area.*

The load duration curve for Courtois Creek was calculated at the outlet of the stream and therefore corresponds to the entire watershed as listed on the approved 2008 303(d) list (calculated as 135,680 acres in this TMDL) and not the 46,784 acres that was assessed by the Department as being impaired. Clarifying language was added to Section 5.1 and the first sentence of this section, which discussed the watershed area assessed by the Department to be impaired, was removed.

2. *Page 11-13. Please indicate period of record of the flow durations used in Figures 4-9.*

Flow data from Oct. 1, 1982 to Feb. 22, 2009 from USGS stream gage 07013000 – Meramec River near Steelville, Mo was used to develop the load duration curves. Language indicating this date range for the data was added to Section 5.1.

3. *Page 14. It’s not clear if the flow (cfs) column in Tables 3-8 correspond to the median of the flow ranges (1st column). Please explain how the observed load in the tables was calculated.*

Tables 4 – 9 (formerly 3 – 8) detail the greatest percent reductions of existing pollutant loads necessary to meet the TMDL loading targets within the Indian Creek, Tributary to Indian Creek, and Courtois Creek watersheds. Likewise, flow values presented in Tables 4 – 9 correspond to the observed load requiring the largest percent reduction not the median of the flow ranges. Exceedance ranges where no data is presented indicate that no samples were collected at these flows. Observed loads were calculated using measured data and adjusted flows. Language similar to this can be found in Section 5.3. The first column, Percent Load Exceeded, of each table was changed to reflect the specific percentile that corresponds to the observed data rather than a range. Table headings were also modified to better reflect the data presented.

4. *Page 14-15. Please explain why the median flows (2nd column) for each flow interval in table 4 are different from table 3, table 6 different from table 5 and table 8 different from table 7.*

Please see the response to Comment 3. Flow values presented are not median flow values, but correspond to the observed load requiring the greatest percent reduction. Edits to the tables were made to clarify presentation of the data.

5. *Page 16-17. Please explain why the target load in table 3 (4th column) is different from the LC in table 9 (3rd column), table 4 different from table 10, table 5 different from table 11, table 6 different from table 12, table 7 different from table 13, table 8 different from table 14.*

Tables 4 – 9 (formerly Tables 3 – 8) show values as they correspond to the observed loads requiring the greatest percent reduction. Please see response to Comment 3. Edits to the tables were made to clarify presentation of the data.

Tables 10 – 15 (formerly Tables 9 – 14) show TMDL values as they correspond to the upper-most flow value of the specified percent load exceeded range. The first column of these tables, Percent Load Exceeded, has been modified to reflect the specific percentile corresponding to the TMDL value.

6. *Page 16-17. In tables 9-14 it is not clear if the flows (2nd column) are the median at each flow interval or corresponds to a particular percentile at each range.*

Please see response to Comment 5. The first column of these tables, Percent Load Exceeded, has been modified to reflect the specific percentile corresponding to the TMDL value. As noted in the responses to other comments above, additional clarification and explanation has been made in the text to indicate how the numbers in these tables were derived.

7. *Page 17. It looks like the WLA's are set at the 99th percentile. Please correct the statement in the MOS that WLAs were set corresponding to the 80-100 percent flow exceedance.*

The statement in the MOS section of the document has been corrected to read that WLAs are set at the 99th percentile.

8. *Please provide a table that shows the existing permitted limits of the facilities in the watershed. Please also show the existing loading from the facilities.*

A table (Table 3) providing the requested information has been added to Section 3.1.

Comments on TMDL

1. *Page 5, Section 3.1, “The Indian Creek and Courtois Creek watersheds contain four facilities with site specific permits as well as two facilities with general storm water permits.” Table 2 indicates there are three sites specific, one general permit and two storm water. Please clarify.*

The information in Table 2 is accurate. The text for Section 3.1 was edited to be consistent with Table 2.

2. *Pgs 14-15, Tables 3 – 8, and Pgs 16-17, Tables 9-14, the values listed appear to be for a specific percent exceedance values of 20, 40, 60, 80 and 100 and not a range. Please correct the percent exceedance values listed.*

The values listed in the percent exceedance columns for the stated tables were changed to show the specific percent exceedance values instead of the previously given range.

3. *No mention of CAFOs was made in the TMDL. Please document similar to Village Creek if there are none: “Within the Village Creek watershed, there are no agricultural nonpoint sources of lead that cause or contribute to the impairment.Agricultural areas, such as row crop, should not contribute during the growing season due to crop cover, but may contribute to the impairments during field preparation and tillage. However, these periods of disturbance are expected to be infrequent. Additionally, row crop area in the Village Creek watershed only accounts for about 3 percent of the total watershed land use thereby making any inorganic sediment or lead loading contributions minimal.”*

Text stating that no CAFOs are present in the watershed has been added to Section 3.1. Language regarding agricultural nonpoint sources similar to that used in the Village Creek TMDL and suggested in the above comment was added to Section 3.2.

4. *MOS can't be approved as it is written now. Chronic/Acute, Critical condition, WQBEL/TBEL are all requirements. MOS will need to be either explicit or the implicit needs to come from conservative assumptions w/in the modeling or something else that is beyond the TMDL requirements.*

The extraneous language in Section 7 (Margin of Safety) stated in the above comment has been removed. This section now reads, “The margin of safety for these TMDLs is implicit and is based on the conservative assumptions used in developing and applying the TMDL load duration curves. Using the load duration curve approach ensures water quality standards are achieved under all flow regimes. Conservative assumptions were also used in setting WLA values at the 99th percent flow exceedance. This value is expected to be protective of water quality during low flow conditions in a conservative manner.”

5. *Please include the Outstanding State Resource Waters designation for Courtois Creek, 12 miles, Mouth to Hwy 8, as it has implications for WLA, loading and NPDES permits.*

References to Courtois Creek being designated as an Outstanding State Resource Water for 12 miles in Crawford County was added to page ii, Section 2, and Section 4.1.

6. *Courtois Creek also has the designated use of Protection of warm-water aquatic life. Please clarify why it is not included. If it needs to be included, please clarify whether it would be an additional impaired designated use.*

References to designated uses within the document have been edited to better reflect the state's designated beneficial uses as defined in regulation at 10 CSR 20-7.031(1)(C). All three impaired water bodies are now shown as having the Protection of Warm Water Aquatic Life use designation assigned to them as found in Table H of Missouri's water quality standards. Because the Protection of Warm Water Aquatic Life use is associated with the metals water quality criteria described in 10 CSR 20-7.031(4)(B)(1), this is the impaired use addressed by the TMDL.

7. *Tables 5 and 6 - Looking at the corresponding LDCs in figures 6 and 7, values can be given for those missing. Please clarify why no values were given in three rows of these tables for flow and LC.*

Portions of these tables were initially left blank due to the absence of observed data for the specified percentiles. Included flow and target values were selected based on the observed data. Since flow and target values can still be determined in the absence of the observed data, as seen in the figures mentioned in the comment above, the median flow and target values for the shown percentile ranges has been entered into these columns.

8. *WLA and LA section: As requested for the MOS, please clarify at which percent flow exceedance these loads have been set. From the models it appears the WLAs are set at the 99th percentile.*

The wasteload allocations for these TMDLs have been set at the 99th percentile. Load allocations for the Indian Creek, Tributary to Indian Creek, and Courtois Creek watersheds at the 99 percent flow exceedance were set at zero due to negligible nonpoint source loading of dissolved lead and zinc to the impaired segments at these flows. Section 6 of the document was edited to clarify and reflect this approach.

9. *There is some inconsistency between the explanation of the problem and the TMDL Allocations. In the problem section, it states there are historic mining sites which are expected to be minor contributors. When discuss nonpoint sources, there is discussion of*

contaminated soils along roads (unintentional movement) and residential yards (intentional movement for fill).

Discussion regarding the historic mine sites has been edited to clarify why any potential contributions to the impairment from these sites is expected to be insignificant (see Section 3.1). Contamination along haul roads and residential yards is included in the point source portion of this TMDL as these potential sources are included as part of the St. Joe Mineral Corporation-Viburnum Superfund site, for which the Doe Run Company has been identified as the potentially responsible party for remediation and cleanup. Clarifying language has been added to note that completed Superfund removal or remediation activities has likely reduced the potential inputs from residential soils to insignificant levels. The Doe Run Company's tailings piles, dewatering ponds, and disturbed mining lands along with the Superfund site, which includes the Doe Run Company's haul roads, are addressed singularly as the Doe Run mining area and as the primary point source contributing to the impairments. Clarifying language detailing the above has been added to Section 3.1.

- 10.** *It is unclear whether this TMDL is also to address the listed metals impairment for Indian Creek and Courtois Creek. There appears to be sufficient explanation in Section 1 Introduction to approve this and the approval letter states it is for metals, but the TMDL itself on the first page is only labeled for zinc and lead. Please clarify.*

This TMDL document is written to also address the metals impairment included on the approved Missouri 2008 303(d) List of impaired waters. To provide clarification of this intention, metals is now listed on page ii as a pollutant. Additionally, clarifying text was added to Section 1.